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International Specialists in the Environment

TO : Les Sprenger, FIT-RPO
FROM : Susan Kennedy, E & E FIT
DATE : August 17, 1988
SUBJECT: Evaluation of the EPA Region VIII Laboratory Quality Assurance Program with Respect to 1985 Data for Richardson Flat Tailings, TDD F08-8808-01.
CC : Dave Schaller
: Tom Burns

On 9 August 1988, E & E FIT received from EPA Region VIII Laboratory copies of subject file materials for the 1985 inorganics analysis of ground water, surface water, surface soil/tailings and subsurface soil/tailings samples collected from Richardson Flat Tailings. The subject file contained computer printouts and hand-written laboratory "bench sheets" which have been reviewed by FIT chemist Mark Chapin.

From the data presented, it appears that all current contract required holding times were met, with the exception of the subsurface soil and tailings samples whose mercury holding times seem to have been exceeded by two days. Raw data for cyanide analysis in ground water samples was not included in the package.

A colorimetric analysis was used for all mercury analysis. It appears that a blank and three or four calibration standards were run, and a calibration curve established. Duplicate and spiked sample analysis were run at appropriate frequencies. Duplicate relative % difference values and sample spike recovery values checked met current contract required limits. For solid samples, a digest blank and digest reference standard were run. An EPA "sludge" sample was also run for % recovery comparison.

All other task 1 and 2 metals were analyzed for by ICAP. For all sample analysis, it seems that a blank and a "high" and "low" concentration standard were run for the purpose of establishing an initial analytical calibration curve. The values checked during the QA/QC process met current control limits.

Several reference standards were also run during sample analysis. The specific factor of this reference analysis, as well as appropriate % recovery control limits are not known.

Sample spikes and duplicates were run at required frequencies. Duplicate RPD values and spike recovery values checked during the QA/QC review met current contract required control limits.

For solid sample analysis, an EPA sludge sample and an NBS (National Bureau of Standards) sediment sample were analyzed. The % recovery values for these control samples met required control limits (for the most part).

Sample weights for surface soils, but not subsurface soils, were given in the data package. Percent solid calculations were not provided to check solid concentration calculations from raw data.

Sample results for liquid samples were relatively straight forward, and approximately 30% of these values were traced through from the raw data to the final report table to check for calculation errors and transcription mistakes.

No flags were assigned to the data either by the EPA analytical lab or the data reviewer.

It is suggested by the data reviewer that if a more thorough critique of the quality assurance procedures carried out by the EPA lab is necessary, they be contacted directly, and asked to submit a brief outline of QA/QC procedures employed for this case, and list the rationale and control limits used to assure data quality.

Data pertaining to serial dilutions analysis, interference check sample analysis, prep blank analysis, and linear range standards analysis were not believed to be included in the data presented for review.

Although not all the QA/QC information normally associated with CLP data packages was included, the QA/QC data available for FIT's review met current EPA guidelines for data validation except for mercury holding times.

The data is therefore, deemed useable based on the available QA/QC materials provided by EPA Region VIII Lab.